

DELAWARE RIVER BASIN COMMISSION

WATER RESOURCES PROGRAM

2003



Resolution No. 2003-6 of March 19, 2003
extended and adopted the 2002 Water
Resources Program as the 2003 Water
Resources Program.

Delaware River Basin Commission
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as of 3/19/03

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PROGRESS IN 2002 IMPLEMENTING RECOMMENDATIONS CONTAINED IN THE 1999 WATER RESOURCES PROGRAM

The Delaware River Basin Compact requires the Commission to annually adopt a water resources program based on the Comprehensive Plan that consists of the projects and facilities which the Commission proposes to undertake itself or will be carried out by other authorized governmental and private agencies, organizations and persons during the ensuing six years or such other reasonably foreseeable period as the Commission may determine. The proposed projects are to satisfy the quantity and quality of water resources needs for the basin.

This reports the status of work through 2002 and actions proposed for continuation in 2003.

BASIN PLANNING PROCESS

Basin Plan Development. In November 1998, the Commission initiated a public process to set direction for water resource issues. The process, involving numerous governmental and non-profit organizations, was named *AFlowing Toward the Future* and it culminated in a Governors' Summit held September 29, 1999. Among the recommendations endorsed by the governors was a direction to the Commission to develop a new comprehensive water resources plan for the basin. To this end, on October 27, 1999, the Commission created a Watershed Advisory Council (WAC) to advise and guide the Commission in setting directions for basin-wide watershed management and developing a comprehensive water resources plan, referred to as the Basin Plan.

The Basin Plan is a goal-based plan being developed by interested parties in the basin for the management of sustainable water resources for a 30-year time horizon. The Council consists of 35 members with technical, economic development, academic, and environmental interests, selected from numerous sectors. In developing a Basin Plan, the Council is considering multiple geographic, political, hydrologic, and institutional factors as well as alternative planning approaches. In addition, the Council will advise the DRBC in goal setting and establishing indicators to monitor progress. The creation of the Basin Plan follows the resolution signed on September 29, 1999 by the governors of the four basin states, as well as the federal government represented by the US Army Corps of Engineers and supported by the US Environmental Protection Agency and the National Park Service.

Through a facilitated process, allowing partners to provide input in their areas of expertise or interest, the Council is creating an approach for development of a plan that includes the following components:

- Key Result Areas (KRAs)
- Desired Results
- Goals
- Objectives

- Management Strategies
- Implementation Plan

The five KRAs that have been identified by the WAC are as follows:

1. Sustainable Use and Supply
2. Waterway Corridor Management
3. Linking Land and Water Resource Management
4. Institutional Coordination and Cooperation
5. Education and Participation for Stewardship

Committees have been formed to address the goals and objectives in each of the KRAs. These include standing committees of DRBC and ad hoc committees created for the purpose of preparing portions of the Basin Plan. The committees include representatives from state agencies, industry, environmental groups and the public, many of whom have experience and expertise in the KRAs being planned.

The Basin Plan will be implemented by the partners based on an implementation plan and schedule. Specific roles in the implementation plan will be determined in FY2004 and carried out in subsequent years. It is expected that expert organizations would implement certain portions and agencies, including DRBC, would implement others. It is also expected that DRBC would play a leadership, facilitation, monitoring and reporting role to assure continued progress of the plan.

DRBC is taking the lead on some baseline tasks identified in the Basin Plan, including, with the help of USGS, the development of methodologies for determining water budgets and water availability for watersheds in the Basin. DRBC is also investigating the availability and suitability of tools to assess alternative development scenarios for impacts on water resources. These activities will be funded as Comprehensive Plan activities in FY2003 and FY2004.

Comprehensive Plan Development. B The CP referenced in numerous places in the Delaware River Basin Compact, addresses the conservation, utilization, development, management, and control of the water resources of the basin. It includes plans, policies, public and private projects and facilities, and regulations. Since 1962, this plan has been regularly updated by adding, modifying, and deleting components. In FY2002, the CP was compiled into a single document. DRBC is revising the Commission's Comprehensive Plan (CP) to reflect the goals and objectives of the Basin Plan. The revised Comprehensive Plan will also be fully consistent with the Compact. Staff envisions that the CP would contain those goals and objectives from the Basin Plan that DRBC is capable of implementing and enforcing under our interstate water resources authority. DRBC will continue to develop the revised CP in 2003 and anticipates its completion by the end of 2004.

WATER SUPPLY

Water Use Inventory. C Water usage data for withdrawals greater than 100,000 gallons per day (gpd) have been collected by the four basin states and the DRBC since 1987. These data have been used to compile a database of regional water use information for the Delaware River Basin. The database includes monthly water use volumes for surface water and ground water withdrawals and pertinent identifying information for each withdrawal including location, permit numbers, and use type. The database will support various statistical analyses and forecasting tasks aimed at characterizing water use trends within the basin. The database will be used to project future water supply needs, assess impacts of water use on both surface and ground water, and determine the effects of water conservation programs.

Since 1996, DRBC has been struggling with the collection of reliable water use data for users in the Delaware River Basin. In FY2003 DRBC staff utilized all readily available information in order to produce an updated trend analysis for the years 1990 - 2001. Previous assessment has been limited to 1996. Significant data gaps exist and DRBC continues to work with the states to obtain this information but is also considering the feasibility of a strategy to obtain water use information directly from users.

Additionally, DRBC recognizes that water use information on agricultural water use is lacking within the Basin due to there being no requirement for agricultural users to meter water use (although use should be estimated). In order to complete the picture of Basin wide water use the National Census of Agriculture will be used to supplement data received from Basin states.

In FY2004, a profile report will be produced, based on the best available information, to describe water use in the basin. Baseline data including recent trends will be presented for the basin as a whole and for each state, county and sub-basin. Water use will be evaluated based on use category and ground water vs. surface water use. In FY2004 the database will be used to develop water demand projections as necessitated by the Basin Planning process.

Water Conservation. C Service Metering, Resolution No.87-7 (Revised) requires service metering in the Delaware River Basin, including the retroactive installation of meters at existing unmetered connections by September 28, 1998. Nearly 100 percent of the connections are now metered. The Commission staff will continue to work with the four basin states and purveyors to achieve full compliance with this requirement.

Leak Detection and Repair, Resolution No. 87-6 (Revised) requires water utilities that distribute in excess of 100,000 gallons of water per day during any 30-day period to develop systematic programs to monitor and control leakage. Initial leak detection and repair plans were submitted by utilities in 1989 and 1993. Based on a 1994 survey, unaccounted water use had declined 15.7 percent over the four year period. Through efforts of the Water Management Advisory Committee, the basin states have submitted unaccounted-for-water data for 1999. Updated plans will be sought from water utilities.

In FY 2003, staff made a presentation to the Water Management Advisory Committee on alternative regulatory approaches to leakage control and water losses. In FY 2004, further work will be undertaken to assess the feasibility of developing a new regulatory approach, possibly incorporating guidance prepared by AWWA's Leak Detection and Water Accountability Committee.

Water Conservation Performance Standards, Resolution No. 88-2 (Revision No. 2) sets water conservation performance standards for toilets, faucets, urinals, and showerheads. Delaware, New Jersey, and New York adopted statewide requirements that met the Commission's standards by January 1, 1992. As of December 2002, 378 out of 505 Pennsylvania municipalities had adopted local requirements that met the Commission's standards. The Commission is continuing to pursue enforcement of this requirement through the Commission's project review activities. However, those municipalities who have not yet adopted ordinances compliant with this resolution are typically in areas where there has been low growth and hence have not come to the Commission for new or expanded withdrawals.

Water Conservation Plans and Rate Structures, Resolution No. 92-2 requires water utilities seeking Commission approval for new or expanded water withdrawals to submit water conservation plans with their docket applications. Utilities seeking approval for new or expanded withdrawals in excess of 1 mgd are required to conduct an evaluation of the feasibility of implementing a water conservation pricing structure if they have not already done so. Since the adoption of the resolution, 90 water conservation plans have been submitted by applicants. As of December 2002, approximately 90 plans have been approved by DRBC and the States. In the past year, two purveyors have worked with DRBC to implement a water conservation rate structure. DRBC continues to promote rate structures that encourage conservation and intends to work with the appropriate state utility commissions to facilitate adoption of such rates.

The Commission, in 1999, established a Water Management Advisory Committee, which replaced the Ground Water Advisory Committee and the Water Conservation Advisory Committee. The new Committee advises the Commission and its staff on water demand forecasting, implementation of water conservation regulations, ground water flow modeling, integrated resource planning and watershed-based planning. The committee held its first meeting on November 4, 1999.

Additional water conservation activities proposed for the year 2003 include: developing a guidance document for preparing conservation pricing studies and educational activities including preparing brochures on water conservation and sponsoring technology transfer sessions. During 2002 and 2003, DRBC has been developing a policy regarding water management on golf courses based on a review of existing data and literature. In 2004 DRBC will develop similar guidance material for other sectors of water use.

Southeastern Pennsylvania Ground Water Protected Area Amendment. C On January 28, 1998, the Commission adopted Resolution No. 98-1, which established a two-tiered system of numerical withdrawal limits for 14 sub-basins in the Neshaminy Basin. The withdrawal limits were based on the results of the United States Geological Survey (USGS) Water-Resource Investigations Report 96-4127 *Water-Use Analysis Program for the Neshaminy Creek Basin, Bucks and Montgomery Counties, Pennsylvania*. The regulations also allow municipalities within a sub-basin to collectively adopt more stringent withdrawal standards than the DRBC if certain conditions are met. On June 23, 1999, the Commission adopted Resolution 99-11 establishing ground water withdrawal limits for all sub-basins in the Southeastern Pennsylvania Ground Water Protected Area (GWPA). A copy of the resolution is available on the DRBC homepage as are selected GIS layers and water use information for each sub-basin.

In FY2003, the Commission expects to complete two studies to implement amendments to the GWPA regulations enacted in FY1999. In FY2001, the Commission contracted with the Montgomery County Planning Commission to develop a prototype integrated resource plan for a sub-basin in the Southeastern Pennsylvania Ground Water Protected Area. Integrated resource plans are a new tool that municipalities can use to coordinate management of water and related land resources in a sub-basin. Under the direction of the Water Management Advisory Committee, staff has prepared guidelines for implementing the integrated resource planning requirements of the GWPA regulations. A guidance for developing Integrated Resource Plans (IRP) was issued on April 3, 2002.

The Commission also contracted with the U. S. Geological Survey to develop a ground water flow model which has now been calibrated and is ready for use for preliminary model runs and predictive analyses. A ground water flow model will help Commission staff in assessing the impacts of ground water withdrawals on stream base flows.

Water Sales. C The water sales program, adopted by the Commission pursuant to Resolution Nos. 71-4 and 74-6, will continue to be administered. This program involves execution of contracts with major water users and the assessment of charges against surface water users under a self-invoicing arrangement. The legal entitlement program as it relates to municipal and industrial withdrawals of surface water was completed in FY1975.

In FY2004, new water sales contracts will be negotiated, as needed; current contracts will be monitored; and self-invoicing procedures will be spot-checked. Surface water use and payment data will be collected, recorded and maintained in an Excel database and made available to DRBC staff as needed. Incorrect and/or delinquent reporting and payment issues will be addressed as they arise and will be documented. The entitlement program will continue to be monitored and entitlements transferred or rescinded as needed. Rescinded and transferred entitlement information will be documented in an Excel database. Finally, field checking of water users' withdrawal and metering facilities will be carried out, as staff time permits.

BASIN OPERATIONS

New York City Delaware Basin Reservoirs. C The experimental release program was extended to April 30, 2003 to coincide with an amendment whereby 50 percent of the yearly excess release quantity is automatically held and placed into a fisheries protection bank to be made available to augment releases during drought warning and drought watch periods. The remainder of the excess release quantity can be used by the lower basin states to maintain the Delaware River flow objective at Trenton in accordance with the Lower Basin Drought Operating Plan. The amendment also temporarily redesignated the upper half of drought warning (DW1) to Adrought watch@ and renamed the lower half of drought warning (DW2) to Adrought warning@. These designations will terminate on April 30, 2003. The parties to the 1954 U. S. Supreme Court decree apportioning the waters of the basin will continue working on a long term release program in 2003.

Merrill Creek Reservoir. C The Merrill Creek DRBC docket was revised to allow the depletive water use from additional designated electric generating units to be replaced by releases from the reservoir during basinwide drought conditions. Storage in Merrill Creek Reservoir continues to be available to new generating facilities for replacement of consumptive use by contract with the Merrill Creek Owners Group.

F.E. Walter and Prompton Reservoirs. C F.E. Walter and Prompton remain in the DRBC Comprehensive Plan, but modification of either for water supply purposes is not anticipated in the next six years and any future participation by the Federal Government would require new authorization. The Commission will continue to evaluate temporary storage in F.E. Walter during drought emergency conditions. The Corps of Engineers presently stores water in F.E. Walter periodically for whitewater releases downstream on the Lehigh River. The proposed legislation for inclusion in Water Resources and Development Act 2003 would direct the Secretary of the Army to enter into an agreement with the Commission to provide temporary storage at F.E. Walter at an annual cost not to exceed the incremental operating costs associated with providing the storage.

Blue Marsh and Beltzville Reservoirs. C These reservoirs contain the Commission's water supply storage which is used to augment the Delaware River flow at Trenton during low flow conditions. Releases are made when the predicted flow at Trenton would result in less than 3,000 cubic feet per second (cfs) on a daily average basis. These calculations take into consideration the flow at Montague, N.J., the flow of the Lehigh and Schuylkill Rivers, and the base flow between Montague and Trenton, all corrected for travel time.

Flow Modeling. C Commission staff provided flow modeling services under the direction of the Flow Management Technical Advisory Committee (FMTAC). Modeling work was completed on the analysis of a proposal to enhance fisheries protection downstream of the three New York City - Delaware Basin reservoirs. The modeling required modifications to the daily flow model program code to incorporate both basin-wide and lower basin reservoir storage triggers. The fisheries protection proposal, made by the state of New York and modified through negotiation by FMTAC, was approved on an experimental basis in April 1999. Results of FMTAC directed model runs were

supplied to interested parties as requested for analysis of consumptive use replacement requirements for power generation facilities.

Daily Flow simulations also will be made to assist the Commission staff with evaluation of water allocation requests, reservoir operation modifications and drought operations. The Daily Flow Model inflow file requires updating to include the hydrologic period since 1986. The staff will work in cooperation with the Corps of Engineers to develop the inflow file to drive the new OASIS Model generated as part of the flow management study.

The OASIS daily flow model, one of the products of the Flow Management Study, will be utilized with possible modifications with flow targets and thermal requirements to investigate the impacts of a long term fishery program which is being considered by New York State DEC and the New York City DEP. The existing interim fishery program approved by the Commission in Docket 77-20 CP, Revision 5, will end April 30, 2003 and a longer term program is expected to be proposed by that time. Modeling of alternative flow targets and water banks is anticipated to be done prior to April, 2003 with the financial support and cooperation of the NYDEP and NYCDEC. Staff will coordinate this effort with an independent consultant and also be involved in working with the consultant in performing some of the modeling.

Staff has reviewed the flow issues raised in the draft report of the Flow Management Study. Many of these issues are relevant to some of the objectives regarding in-stream flow issues also raised as part of the Basin Plan process presently underway. Staff will coordinate a process suggested by the Nature Conservancy to attain a healthy aquatic ecosystem in the basin by working with the Flow Management and Water Management Advisory Committees as well as with Nature Conservancy representatives in FY2004. The OASIS flow model will be an instrumental tool to simulate impacts of stream flow objectives proposed to resolve the flow issues raised by the flow study and the Basin Plan.

Salinity Modeling. C DRBC will continue salinity modeling as necessary to predict the effect on chlorides in the estuary attributable to increased depletive water use, dredging activity and sea level rise. Sea level data will be updated periodically to assess sea level trends. The staff has converted the Commission's salinity model and its data files to a PC based format. Additional work will be done to run and check the pre- and post-processing programs.

Reconsideration of Basin Operating Assumptions and Flow Needs Study. C The U.S. Geological Survey, under a joint funding agreement with the Commission, completed an evaluation of the vulnerability of the PRM aquifer to salinity intrusion from the Delaware River. The draft report for this evaluation was completed in early 1999. The report concluded that the threat of chloride contamination of PRM wells by estuary chloride intrusion was less than assumed in the development of the Commission's chloride control policy. These findings and their policy implications, combined with funding limitations, changed the course of the proposed Aflow needs® study.

After evaluating a new series of options prepared by the Commission staff, FMTAC recommended and the Commission approved a request for proposals for a Strategy for Resolving Interstate Flow

Management Issues in the Delaware River Basin. This is a planning level study to identify interstate flow augmentation issues and develop a strategy which would lead to a flow management rationale which recognizes benefits related to water quality, water supply, habitat and recreation. Proposals for the study were received from consultants in September and work is expected to be complete early in 2003.

Staff will continue to provide project management and data assistance for the study to help resolve interstate flow management issues. In FY2004 the consultant for the project will submit a final report identifying issues and technical needs for addressing them. Information needed for defining additional flow relationships will be identified. The staff will review this work as it progresses. The staff will continue to be involved with the review and evaluation of the OASIS flow model and will subsequently use the model for evaluation of flow management issues. Follow-up work by the staff will be required to address the recommendations developed by the study.

Hydrologic Data Collection. C Hydrologic data are compiled into a Delaware River Flow and Storage Data report that is posted daily on the DRBC's web site during drought conditions. Also posted is a graph depicting New York City - Delaware Basin reservoir storage over the past year. Copies of the report and graph are distributed daily to DRBC staff. To save staff time during non-drought periods, weekly instead of daily hydrologic reports were posted on the web site for a month's trial to see if the public would respond favorably. Generally, there has been little objection so the weekly reporting will continue. Much of the data that is now posted daily can be found on other web sites of the U.S. Geologic Service and the U.S. Army Corps of Engineers. End of month summaries will continue to be prepared and distributed. A monthly hydrologic report including summaries of precipitation, streamflow, ground water, storage, and chloride data is prepared for each Commission meeting and placed on the DRBC web site. Staff also prepared an annual summary of hydrologic conditions. This activity will continue in the year 2003.

DRBC is also conducting an effort as part of the Lower Delaware Monitoring Program to create stage/discharge relationships for a number of ungaged tributaries to the Delaware River. These are created for the purpose of calculating pollutant loadings contributed to the Lower Delaware, but may be of use to various partner agencies and citizen monitoring groups.

Staff will continue to review hydrologic conditions and provide assistance to the Commission and 1954 Supreme Court Decree Parties regarding reservoir management decisions in accordance with DRBC drought operating plans and regulations regarding conservation releases.

Drought Coordination. C The staff, in consultation with the Flow Management Technical Advisory Committee (FMTAC), will continue to provide hydrologic conditions updates to basin state water managers for use in drought management as required by future hydrologic conditions.

FLOOD LOSS REDUCTION

The Commission's activities in flood loss reduction focus on: coordination efforts to advance flood

mitigation and improve basin-wide flood warning capabilities through the DRBC Flood Advisory Committee; information and educational activities; distribution of flood forecast information to the public when required; application of floodplain regulations to reviewable projects; and support for storm water and floodplain management as a means of reducing flood losses. The Watershed Advisory Council is also incorporating flood mitigation in its ongoing comprehensive planning effort.

In FY2004, the Commission will continue to update flood information through improvements to its Internet web site. The site includes information on flood insurance, flood warning and flood safety precautions. The Commission will seek funding support for development of a flood hazard assessment web site to aid communities with flood hazard mitigation planning. The Commission will continue to apply its floodplain regulations to projects reviewable under section 3.8 of the compact. The Commission's inter-agency flood advisory committee will continue to expedite the flood warning improvements. This committee is generating increased staff activity in flood loss reduction. The staff and the Flood Advisory Committee have developed and are acting to implement a set of recommendations for flood warning improvements in the basin. Through the Advisory Committee, and using FY2003 appropriations for the Advanced Hydrologic Prediction Services (AHPS), the National Weather Service will begin implementation of AHPS related components of the recommended improvements. Staff will continue to seek federal funding for full implementation of the recommendations.

The staff will continue to coordinate comprehensive planning efforts with the Flood Advisory Committee and Watershed Advisory Council.

During 2002, the DRBC's Project Review staff continued to apply its flood plain regulations to those projects subject to review under Section 3.8 of the Compact. The Project Review and Operations staff also meets with interested parties concerning the application of the flood plain regulations to encroachments that do not come under 3.8 review.

PROJECT REVIEW

From January 1, 2002 to December 31, 2002, 67 new applications for DRBC review were received and 65 dockets were reviewed and approved by the Commission under Sections 3.8 and 10.3 of the Compact. Of the 65 dockets, 37 were concurrently added to the Comprehensive Plan, 9 were renewal projects, and 4 were Ground Water Protected Area permits. Appendix B lists the projects approved by the Commission under Section 3.8 of the Compact but not part of the Comprehensive Plan nor Water Resources Program.

The number of new applications had decreased over the previous three years mainly because of the extension of renewals for well projects from five years to ten years, but also because new or expanded municipal and private sewage treatment plant (STP) projects had been proposed at a slower rate than in the past. Since most of the major STPs have been expanded in the last ten years, based on a 10- to 20-year design capacity, an increase in the rate of STP expansion projects is expected in

the near term. There already have been recent increases in new water supply proposals for energy, residential and commercial development. Also, the number of ground water renewal projects steadily increased in 1999 due to the expiration of the dockets extended by Resolution 93-12 in 1993.

In 2003, water or water-related projects proposed for implementation by any person, corporation, or governmental authority, will continue to be reviewed for conformance with the Comprehensive Plan.

These reviews, conducted in accordance with the Commission's Rules of Practice and Procedure, will result in recommended courses of action by the Commission. Project Review will continue to implement a ground water allocation program on behalf of Pennsylvania in the Southeastern Pennsylvania Ground Water Protected Area, an area in all or part of five counties and over 125 municipalities. Project Review staff will continue to work at applying sound water resources management via implementation of the policy and rules of the Commission's Water Quality Regulations, Water Code and Rules of Practice and Procedure to help sustain watershed resources and uses.

SCENIC RIVERS STUDIES B LOWER DELAWARE

The Lower Delaware River Management Plan was completed in August 1997. Legislation was introduced in both the U. S. House of Representatives and Senate in June 1999 to designate segments of the Lower Delaware River as part of the National Wild and Scenic River System. The President of the United States signed Public Law 106-418 on November 1, 2000 designating portions of the Lower Delaware River as part of the National Wild and Scenic Rivers System.

Downstream of the Delaware Water Gap, the Commission will continue to support the recommendations of the Lower Delaware Wild and Scenic Rivers Study Management Plan. In the "Lower Delaware," water quality protection has been selected by the River Management Plan Development Committee as the highest priority issue to be addressed by the river management plan. One of the key recommendations of the plan is that the Commission, Pennsylvania and New Jersey jointly should develop a water quality management plan for the Lower Delaware. The plan would address needed regulations, monitoring and other water quality management actions. Nearly all municipalities bordering each of the river segments that have been, or are eligible to be designated as Wild and Scenic have passed resolutions supporting the plan. The Commission will continue to collect and assess data in FY2004 for defining "existing water quality" and to support a Lower Delaware River water quality management plan. The Commission will also continue to consider the petition from the Delaware Riverkeeper Network to designate the Lower Delaware River as Special Protection Waters.

SCENIC RIVERS STUDIES B UPPER AND MIDDLE DELAWARE

The Commission will continue to assist the U.S. National Park Service in implementing the Upper Delaware Scenic and Recreational River Management Plan and the Water Resources Management Plan for the Delaware Water Gap National Recreation Area. This activity will be in cooperation with

the states and the counties bordering the river.

WATER QUALITY MONITORING AND ANALYSIS

Delaware Estuary and Bay.C Through an agreement with the Delaware Department of Natural Resources and Environmental Control (DNREC), the DRBC obtains surface water quality data at 22 locations in the almost 100 mile reach extending from a point in the center channel near the mouth of the Delaware Bay to the Delaware River at Trenton, N.J. Samples are routinely collected 12 times during the year from March through October. This arrangement may be altered, upon mutual agreement, to facilitate special monitoring activities. Minor modifications were made last fiscal year. Specifically, three stations were added to allow for the collection of water quality samples in the lower Bay. Given fiscal constraints, these stations will be sampled only seven times per year rather than twelve times per year. The parameters analyzed include conventional constituents, bacterial, algal, heavy metals and volatile organic chemicals.

Two additional agreements with New Jersey and Pennsylvania specify sampling of Delaware River tributaries at eleven locations, seven to eight times per year.

River, Bay, and select tributary samples are analyzed to determine their physical, mineral and bacteriological characteristics. Selected heavy metals are sampled at ten locations.

Through monitoring agreements with the New Jersey Department of Environmental Protection (NJDEP) and Pennsylvania Department of Environmental Protection (PADEP), samples are selectively taken from municipal and industrial wastewater treatment facilities located along the Delaware Estuary. Waste volumes and most of the parameters mentioned above are measured.

The Commission will act as a cooperator with the U.S.G.S. for four water quality monitors in the estuary. The annual monitoring program for the Delaware Estuary and Bay selected major tributaries, selected major dischargers, and fish tissue will be continued. Based on the results, the program will be modified or expanded as appropriate.

The DRBC/National Park Service (NPS) Scenic Rivers Monitoring Program.C The program operated throughout 1999, monitoring 15 river and 25 tributary locations for a variety of chemical and physical constituents. The program's sampling effort was examined and several suggestions were developed for statistically assessing the effectiveness of the monitoring program. A 1999 quality assurance plan was prepared and submitted to EPA for approval.

A special monitoring program will be initiated in the Upper Delaware to establish Boundary Control Points (BCPs) for Special Protection Waters in the Lackawaxen River and within the adjoining reach of the Delaware River. An 8.5 mile reach of the Delaware River and the Middle Delaware Scenic and Recreational River will also be monitored for establishing BCPs as part of an interstate watershed management initiative.

In FY2002, the Commission initiated a multi-year, annual macroinvertebrate survey for the Lower, Middle and Upper Delaware River. In FY2003, the program's sampling effort was examined and improvements were implemented. Based upon recommendations arising from reports issued by the National Park Service and Academy of Natural Sciences regarding the three-year macroinvertebrate study of the mid - 1990's, the sampling effort was intensified to three samples per site, and the number of monitoring sites was increased to improve coverage of the 200-mile non-tidal river. The macroinvertebrate survey will continue in 2003. The intent of this program is to document the quality of the benthic community in the non-tidal river and support the development of biological criteria.

Lower Delaware Monitoring Program (LDMP).C The Lower Delaware Monitoring Program (LDMP) was initiated in 1998 as a pilot study of three river sites and ten tributaries near Trenton. In 1999, the LDMP was expanded to include 43 fixed sites and 33 additional special study sites covering the 80 mile reach of the Delaware River between the Delaware Water Gap and Trenton. Components of the program were expanded to include bacterial, biological, and geomorphological assessment. Biomonitoring was conducted in the vicinity of Rotary Island, where macroinvertebrate and periphyton samples were collected. In FY2002, the Commission initiated a multi-year, annual macroinvertebrate survey for the Lower Delaware River. In FY 2003, the program's sampling effort was examined and improvements were implemented. The macroinvertebrate survey will continue in 2003. The annual monitoring program in the Lower Delaware River and selected tributaries will be continued in an effort to develop a database for establishing existing water quality criteria. The monitoring to establish existing water quality is scheduled for completion in 2005.

The Commission will also act as a cooperator with the U.S.G.S. for one water quality monitor in the lower non-tidal portion of the Delaware River.

Nutrient Program.C In May of 1999, EPA awarded DRBC a \$50,000 grant for collection of nutrient data in the main stem Delaware River and selected tributaries. The funding has been used to compile existing data within the basin to determine the current status of the waters and to help determine if trends exist. The funding has also been used to collect additional data in the Lower Delaware River, the estuary, and selected tidal tributaries in Pennsylvania. The contract ends on September 30, 2003.

Delaware River and Bay Water Quality Assessment 305(b) Report.C At the request of the basin

states, the DRBC prepares the biennial report on the main stem Delaware River and Bay required by Section 305(b) of federal law PL 92-500 (Water Quality Act). The Commission's 305(b) report is a summary of an evaluation of the river's ability to support certain water uses such as maintaining aquatic life, swimming, supplying water for human consumption and for industrial uses, and supporting fish and shellfish that are safe for human consumption. The report also provides a detailed, comprehensive description of water quality during the previous two years and notes any changes in recent trends. The preparation of the year 2002 305(b) report, covering 2000 and 2001, began in late 2001. The 2002 305(b) report was submitted to the basin states and EPA in October 2002. Colored base maps generated by a Geographic Information System (GIS) also were provided to EPA for the National Report. In 2003 DRBC staff will comment on EPA's summary of the 2002 report, which EPA will include in the National Water Quality Report to Congress.

DRBC will continue to annually submit water quality data to the EPA database - STORET and, every two years, provide an electronic update of the water use assessment to EPA, along with an abbreviated 305(b) report. Since the 2002 report was a detailed, comprehensive 305(b) report, an abbreviated 305(b) report will be submitted in 2004.

The interstate aspects of state water quality programs including development of the Clean Water Act §303(d) list and §305(b) report will be coordinated by the Commission.

Water Snapshot.C To gauge the extent of volunteer water quality monitoring in the basin, and to celebrate Earth Day, a basinwide survey of water quality was undertaken the third week of April, in 1996, 1997, 1998, 1999, 2000, 2001, 2002 and is planned for 2003 and 2004. Appropriately named "Water Snapshot", this is now an annual event, under the direction of the Commission. This activity will be continued in 2003 to expand public recognition of the people and organizations involved in water quality monitoring. The event not only raises the public's awareness of the basin as a watershed, but it brings attention to the programs of the Commission and the event's co-sponsors to maintain and improve water quality,

Other Outreach Activities:

- Lambertville Shad Festival – education on water quality monitoring
- Stroud Water Research Center's Upstream Festival - ditto.

Served on the Delaware Riverkeeper Network's Technical Advisory Committee.

WATERSHED MANAGEMENT

Christina River Basin Water Quality Management Strategy.C As a member of the Christina Basin Clean Water Partnership, DRBC will continue to take an active role in assisting with and facilitating the implementation of the Christina Basin Clean Water Strategy in 2003 and beyond. EPA approved a low-flow TMDL in 2000. The high-flow TMDL model, developed by USGS, is expected to be completed in early 2003. The Commission will continue to facilitate meetings and assist in the development of TMDLs for high-flow conditions in 2003. The high flow TMDL is scheduled for completion by December 2004.

The Partnership is actively seeking funding for continuing implementation of the Clean Water Strategy, now ready to move into Phase V. In addition to the local funding that has played such an important role in previous phases, other potential funding sources include U.S. EPA's Watershed Initiative Grant program (for which an application was submitted jointly by the Governors of Delaware and Pennsylvania), Section 319 Grants, and other federal funding priorities and programs. In November 2002, DRBC assisted with planning a "legislative event" that highlighted the importance of the Christina Basin and the need for a closer federal-local partnership for funding the Clean Water Strategy.

Goal-based Watershed Study. C In 2000, DRBC undertook a new watershed initiative: a goal-based watershed management pilot study of the Pocono Creek watershed in Pennsylvania. Goal-based watershed management recognizes that protection measures should be tailored to each watershed's unique characteristics. This project seeks to develop a cohesive watershed plan that addresses multiple water resource issues, including the relationships between land use and water quality, water quality and quantity, and surface water and ground water, in an innovative and cost effective manner.

Goal-based watershed management starts with local communities setting goals for their watershed. Both water resource and community goals have been established. These goals address water quality, water quantity, aquatic resources and stream bank protection among others. The Pocono Creek's community goals include development around town centers and establishing an environmentally compatible economy.

In 2002 a consultant was hired to coordinate with each municipality within the watershed on a number of policy items. The consultant will analyze the results of the Growing Greener audit to assess what each town must do to accommodate Conservation Design principles in their local ordinances. Also, the consultant will analyze the 2003 county storm water ordinance to determine ways to implement the tailored watershed management elements missing from existing planning efforts at the local and regional levels. In 2002 the Phase I Report was completed. Also, management scenarios were developed and a review of socioeconomic impacts of the scenarios was begun.

It is expected that local municipalities will select their preferred approach from the management scenarios and an implementation plan will be developed. A final report will be written to summarize

the results of the studies. The selection of the preferred approaches and finalization of the reports will be achieved by June 2003.

Watershed Initiatives.C The Commission's activities in the past year include partnering with numerous watershed programs throughout the basin. In partnership with PADEP, DRBC joined The Brodhead Watershed Association (BWA) in two watershed projects and Pike County's Sawkill and Vandermark Watersheds Rivers Conservation Project.

The BWA received two Growing Greener Grants for an assessment of the Paradise and Cherry Creek Watersheds. DRBC provided technical support and direct assistance to the Cherry Creek project, particularly with their impervious surface study and field verification of existing conditions. The Paradise Creek project's initial Technical Team was formed in December of 2002. DRBC's participation includes providing stream classifications and assessment, stream flow statistics, fluvial geo-morphological, hydro geological and planning and process support. This project is to continue through June 2005. This group has adopted the goals and targets from the Pocono Creek study, since both watersheds share a common topography, political institutions and are within the greater Brodhead Watershed.

Sawkill and Vandermark Watersheds Conservation Project, located near Milford, PA. in Pike County asked DRBC in conjunction with the National Park Service, to conduct an impervious cover survey, and participate on their steering committee. DRBC also helped develop and score a community survey.

The Commission is assisting the NJDEP's Watershed Management Program in the Rancocas Creek (Watershed Management Area #19), the Upper Delaware (Watershed Management Area #1) and Central Delaware (Watershed Management Area # 11). The Commission participates on the NJDEP's TMDL subcommittee and is conducting modeling for the tidal Rancocas Creek. The Commission participates on the Policy Advisory Committees, and the Characterization and Assessment Advisory Committees for Watershed Management Areas #11 and #1.

Tri-State Initiative. C Watershed characterization activities and the development of protection strategies will be continued to support watershed plans and other inter-agency planning activities to protect existing water quality. An intensive, tri-state watershed management initiative will continue in 2003 for developing inter-governmental methods to protect existing water quality in the 8.5 mile reach of the Delaware River between the Upper Delaware Scenic and Recreational River and the Middle Delaware Scenic and Recreational River. The Commission will assist the states with developing a water quality model for conventional pollutants for this section of the Delaware River and in establishing the technical basis for requirements in NPDES permits.

Waterway Corridor Activities. C In FY1996, the Commission formed a Waterway Corridors (WWC) Subcommittee, reporting to the Water Quality Advisory Committee, to address protection and enhancement of stream channels and riparian corridors. Inactive since FY2001 due to staff limitations, the subcommittee will be revived in FY2003 as an ad-hoc committee reporting to the Watershed Advisory Council. During 2003, the subcommittee will develop and coordinate

management strategies, technical tools, and educational materials to fulfill goals and objectives of the Waterway Corridor key result area (KRA) of DRBC's Basin Plan. The subcommittee has begun to address Goals 2 (recreational use and access plan); 3 (restore aquatic ecosystems); and 4 (recreational impact on water quality). Goal 2 issues include: sustainable recreational use; public access; water trails; river trash and debris cleanups; sustainable recreation practices to protect water quality; and promotion of the Delaware Basin as a recreation and tourism destination. Goal 3 issues include: river restoration for sustainable aquatic life; protection and enhancement of wetlands; critical riparian and aquatic habitat restoration and protection; management of invasive non-native plants and animals in riparian and aquatic ecosystems; stream channel stability protection and reduction of sedimentation effects; and dam removal and fish passage.

Several opportunities were presented to DRBC in FY2003 relating to waterway corridors management. These projects will continue in FY2004:

- Involvement in the Delaware River Invasive Plants Partnership (DRIPP).
- Support of the USDA Conservation Reserve Enhancement Programs (CREP) in Pennsylvania and New Jersey, providing riparian buffer set-asides to protect streams on agricultural lands.
- In FY2004, DRBC will conduct fluvial geomorphology investigations and practical applications throughout the State of New Jersey. Assessments have begun in the North Branch Cooper River, Camden County, NJ (Camden County Soil Conservation District); and Moore Creek, Mercer/Hunterdon County, NJ (Howell Living History Farm). Numerous additional projects are anticipated for FY2004. Funding to provide training and technical assistance for stream restoration projects funded under New Jersey's Nonpoint Source Pollution Prevention and Control Program through a §319 grant.
- DRBC serves on New Jersey's Nonpoint Source Technical Review Committee.
- DRBC as part of Pennsylvania's Keystone Stream Team, contributed to Pennsylvania's "Guidelines for Natural Channel Design in Pennsylvania Waterways".
- DRBC is providing geomorphology and benthic macroinvertebrate monitoring and assessment services to the Delaware Riverkeeper Network in the Little Neshaminy Creek watershed, Bucks County, PA (funded by PADEP 'Growing Greener Initiative' grant).
- DRBC is reviewing a report of riparian condition assessments which have been conducted throughout the Delaware River Basin. This report was compiled for the U.S. Army Corps of Engineers as part of the Delaware Basin Reconnaissance Study.
- With the Delaware Riverkeeper Network, DRBC is developing fluvial geomorphology tools and field methods for volunteer stream monitors. These will be presented during a workshop at the Schuylkill Watershed Monitoring Congress in the spring of 2003.

DRBC's fluvial geomorphology projects during FY2003 in Pennsylvania include:

1. Little Neshaminy Creek, Bucks Co., PA FGM assessment for Riverkeeper.
2. Park Creek, Montgomery Co., PA dam removal plan (Little Neshaminy project)
3. Kemper Park restoration plan (Little Neshaminy Cr.)

Water Trail Activities. C Watershed related activities include the Commission's role in the Schuylkill River Water Trail project completed in December 2002, when updated recreation Schuylkill River

maps became available. The maps were printed and will be distributed jointly by the Commission and Schuylkill River Greenway Association.

The Pennsylvania Department of Conservation and Natural Resources has awarded the Delaware River Greenway Partnership (DRGP) a \$75,000 Community Conservation Partnerships Program (C2P2) grant to plan for and begin to develop a Delaware River Water Trail from Hancock, New York to Palmyra, New Jersey. The project will consist of a series of landing and launch sites; a set of updated Delaware River recreation maps, showing important river features; a trail guide, providing directions to launch sites via car and public transportation, information on day trips, loops, longer trips, nearby attractions, land trails, camping and other amenities; a signage program; a volunteer trail maintenance organization; a web site and an outreach program. Preliminary work has begun on updating the Commission's Delaware River recreation maps. DRBC is partnering in this effort with dozens of other river-related organizations. Staff will be involved in overall coordination of the project as well as in development of some trail components.

Special Protection Waters (SPW).C In 1992, the Commission adopted Special Protection Waters policies and regulations to provide antidegradation protection for the Middle Delaware Scenic and Recreational River (which flows through the Delaware Water Gap National Recreation Area) and the Upper Delaware Scenic and Recreational River. Non-point source control regulations were adopted in 1994. Implementation will continue in 2003. The scenic river monitoring program and special studies will continue in 2003.

The Commission will review major changes to the antidegradation section of the Standards. The Commission will also create a guidance manual to assist project applicants in structuring point and non-point source pollution control measures for compliance with Special Protection Waters Regulations.

Delaware Estuary Program (DELEP).C In February 2001, the Steering Committee of the Delaware Estuary Program established a Program Office (PO) for DELEP at DRBC. As one of 28 National Estuary Programs, the PO directs, manages and coordinates DELEP on a daily basis. The PO Staff currently consists of: a Program Director, an Assistant Director and a shared secretary. The Program Director reports to the Executive Director of DRBC and the DELEP Steering Committee. The PO is also supported by a number of DRBC staff members including but not limited to: The IMS Coordinator, who works with the PO on a daily basis, providing technical assistance and web site and tracking database administration. Similarly, the Commission's Monitoring Coordinator along with many other Commission employees support the PO as needs arise.

During FY2004, the DELEP PO will continue to administer, direct, coordinate and implement DELEP's CCMP, FY2004 Budget and Work Plan. The PO continues to serve as the primary contact for program implementation with partners and other organizations.

The PO will work with all the DELEP implementation teams and advisory teams/committees on their key issues as elaborated in the DELEP work plan:

Toxics Advisory Committee (TAC) – PCBs, dredging;
Monitoring Advisory Committee (MAC) – Estuary wide monitoring plan, report and indicator development; State of the Estuary, Measurable Goals/Indicators
Public Participation and Implementation Team (PPIT) – outreach, education initiatives, funding for projects, delep.org;
Habitat and Living Resources Implementation Team (HLRIT) – Future role to be determined in FY04 in conjunction with the implementation of the Habitat Restoration Plan;
Fish Consumption Advisory Implementation Team (FCAT) – Coordinate and work with the 3 States Department of Environmental Protection and Departments of Health to create an estuary-wide fish advisory system,
Information Management Advisory Committee (IMAC) – overall Website, Tracking, GIS, i-Map and data management needs

Additional DELEP activities for FY2004 include:

- Coordinate and provide consistency in estuary related matters during DRBC Comp Plan process.
- In cooperation with the Monitoring Coordinator and the MAC, publish DELEP's Monitoring Report (5 year cycle).
- Continue developing DELEP's 2nd suite of Measurable Goals and Indicators.
- Assist the National Fish and Wildlife Foundation with the implementation of the Delaware Bay/River Small Grants Project.
 - Implement DELEP's Habitat Restoration Implementation Plan and in conjunction with the National Fish and Wildlife Foundation's Delaware Estuary Small Grants Program implement a minimum of 3 -5 restoration projects.
- Continue to assist in the oyster restoration initiative.
- Continue to build upon the habitat prioritization GIS data as developed by in FY2003.
- In collaboration with the Habitat Coordinator, the Partnership and Rims Coordinator, update and maintain a tracking database of estuary activities. DELEP will seek to have the tracking database integrated a GIS mapping function as the next phase of development.
- Work with the IMS Coordinator and the PPIT to ensure DELEP.org is up to date. Most recent changes to the web site include videos and photos of events and projects.
- Pursuing grants and other funding sources to implement the Comprehensive Conservation Management Plan.
- Provide technical assistance on estuary related matters.
- Provide the logistical and staff support matters for the Steering Committee, EIC, Work Group and FCAT.
- Research, identify and recommend program priorities to the Estuary Implementation Committee (EIC) for its consideration and recommendation to the Steering Committee.
- Conduct all business related matters on behalf of DELEP; i.e. correspondence, public requests, EPA Grant, FY05 Budget and Work Plan, 3 Year Plan, GPRA, etc.
- Coordinate public outreach activities with the Partnership for the Delaware Estuary.
- Assist the Partnership for the Delaware Estuary in the publication of "Estuary News", DELEP's newsletter that is published four times a year.
- Serve on various boards to include but not limited to; i.e. Association of National Estuary Programs (ANEP), the Coastal States Organization (CSO), Coastal America, National Fish and

Wildlife Foundation, PSE&G Estuary Enhancement Program Monitoring Advisory Committee, Pennsylvania Coastal Zone Management Steering Committee, New Jersey CZM Clean Marina's Taskforce, PA Coast Day Committee, etc.

- Coordinate with other 27 national estuary programs for purposes of technology transfer and programmatic issues. DELEP is a member of the).
- Compile with request for information from EPA regions 2 & 3 and EPA Headquarters as needed.
- Attend and participate in the two National Estuary Program meetings each year.

Information Management Service (IMS).C In FY2004, IMS Coordinator will focus on expanding the Internet Mapping Service (IMS), continue to coordinate with the Information Management Advisory Committee (IMAC), enhance the Tracking database as directed by the PO and Estuary Implementation Committee (EIC), and provide changes and updates to the Delaware Estuary Program's web site (www.delep.org) as needed.

The DELEP provides Internet users with access to the Tracking database that can be accessed through the web site. The Tracking database is a relational database that provides the implementation status of the Management Plan. It is regularly updated to include new projects that are related to the estuary program and that have been initiated since the CCMP was completed. The Tracking Database continues to evolve with the addition of new data fields which will provide greater analytical capabilities and for the integration of GIS mapping features. During this fiscal year, the reporting features of the database continue to be refined to reflect DELEP's evolving needs of the Program. The DELEP's Work Group continues to provide input on suggested changes to the Tracking Database.

Additionally Internet users, through the web site, can also access i-Map DelBasin. This is an interactive mapping application which allows Internet users to display a variety of information like the watershed associations, USGS stream gages, and recreational information. The IMAC will continue to develop i-Map DelBasin to include the projects from the Tracking database.

POLLUTION ABATEMENT

Development of a New Estuary Quality Model.C A new estuary water quality model for tidal portion of Delaware River has been developed by HydroQual. The model potentially will be used to determine wasteload allocations of carbonaceous and nitrogenous oxygen demand after additional work to improve the model calibration in Zone 2.

Water quality models for dissolved oxygen and bacteria that were originally developed by HydroQual, Inc. will continue to be developed in 2003. Additional data and model calibration work is necessary before decisions regarding the reallocation of the assimilative capacity of Zones 2 through 5 of the Delaware River Estuary for carbonaceous BOD and bacteria are made. Reallocations must also await the establishment of revised standards for dissolved oxygen and bacteria for Zones 3, 4 and part of 5. These actions, which are expected in 2003, will require notices of preliminary allocations, hearings on objections before hearing panels, reports to the Commission

by the panels, and Commission decisions.

Toxics. C In accordance with Resolution No. 2000-4, allocations and/or monitoring requirements will continue to be developed for two volatile organics and acute and chronic toxicity for Zones 2 through 5. With the final submissions of one year of effluent data for the two volatile organics in 2002, it is anticipated that wasteload allocations will be completed late in 2003.

The Commission, Delaware Department of Natural Resources and Environmental Control, New Jersey Department of Environmental Protection, Pennsylvania Department of Environmental Protection and U.S. EPA will coordinate the timing and implementation of water quality tools and studies to support assimilative capacity determinations by the Commission and the development of TMDLs (Total Maximum Daily Loads) for impaired streams for use by the signatory parties.

In FY2004, major emphasis will be placed on completing the development of TMDLs for PCBs and initial allocations of the TMDLs to point and non-point sources in Zones 2 through 5. The Commission will complete the calibration and validation of a new water quality model for penta-PCBs in FY2003, and will initiate work on calibrating new water quality models for the other PCB homologs and chlorinated pesticides for the estuary in this fiscal year. Field studies involving the collection of ambient water, sediment and wastewater samples will continue to be conducted to facilitate the model calibration and validation.

Water Quality Standards. C In 2003 the Commission will continue to develop and adopt interstate water quality standards with the goal of achieving swimmable and fishable status for the basin's streams. Particular attention will be paid to upgrading the dissolved oxygen criteria for the estuary and revising the temperature criteria in the non-tidal portions of the river. The Commission will consider the recommendations of the Toxics Advisory Committee to revise acute and chronic aquatic life criteria for metals and human health criteria for metals and organic chemicals to reflect new data. The Commission will also consider expanding the freshwater toxics criteria to Zone 1 and the marine criteria to Zone 6. The Commission will continue the ongoing review, recodification, and update of its Water Quality Standards, including the review of all policies and criteria and evaluation of the role for the Commission on intrastate and interstate waters. The Commission will discuss the recommendation of the Water Quality Advisory Committee to remove uses and criteria for those interstate waters that do not form the boundary between two states.

NPDES Permits. C In 2003, the Commission will continue to review draft NPDES discharge permits for discharges to basin waters to ensure that they are consistent with Commission standards and wasteload allocations. Primary emphasis is on discharges with major impact on the interstate and/or Special Protection Waters. Special in-stream monitoring programs where supporting data is needed for effective enforcement will continue to be required for dischargers to protect in-stream uses and water quality where appropriate.

INFORMATION SERVICES

Computer technology has been fully integrated into the DRBC daily operations and programs. The technology includes the computer system, geographic information system, access to the World Wide Web, e-mail, the DRBC's web site and other resources.

Commission-wide Computer System. C All Commission employees have personal computers and are connected to the network servers. It is anticipated that seventeen personal computers will be replaced in FY2004 as per the Commission's computer replacement policy. These will be state of the art computers with three or more times the memory, speed and storage of the replaced units. Generally, monitors are not replaced until they fail. Funds have been allocated for two new laptop computers.

Since FY2002, all replacement PCs are installed with Windows 2000 as the operating system. Windows 95 and Windows 98 operating systems are being phased out by the normal replacement of equipment. Routine software upgrades of office suite software, i.e., MS Office XP and Corel Office Suite, are necessary to maintain compatibility with the signatory parties and other organizations. Some specialty software may be acquired, as needed. In-house training on backups, e-mail, virus protection, etc. is provided on an ad hoc basis. Up to four individual laser printers may be purchased to support secretarial and other activities. The new printers would replace Commission printers that fail and for which the service contracts have expired.

DRBC staff members are connected through the network to two laser printers and the XEROX color copier. Staff having GIS capability are connected to a Hewlett Packard plotter for printing large-scale, color maps and diagrams. Replacement of the plotter is planned in FY2004.

Routine updates of the anti-virus software are made to prevent the introduction of computer viruses. In FY2002, a new two-year site license was purchased for McAfee Anti-virus software. The new software has been installed on all PCs. Renewal or replacement of anti-virus software will occur in FY2004.

The Commission continues to use a SUN file server for e-mail and file backups. It is anticipated that additional storage will be purchased in the future. Disk space is allocated among staff for backup of files; however the bulk of the storage is dedicated for backup of the Geographic Information System (GIS). All replacement PCs are equipped with zip drives and writable CDs to supplement the choices for an individual to backup information.

Centralized Database.C Microsoft SQL server database has been installed on the NT server. The water demand data was loaded into the database, and staff has the ability to directly query the database from their PCs and place the results in a spreadsheet, database, or GIS software. Other data will be entered into this database as needed. Efforts have been initiated that will allow staff to display the water demand data on Internet mapping software. The maps will be available on the DRBC's intranet.

Project Review currently maintains a database of all approved Dockets, and the Operations Branch currently maintains the water charges data in spreadsheet form. As time permits, these data will be uploaded and linked to the water demand database. This will give staff the ability to view all available data for a particular well, surface water withdrawal or other type of water use.

Geographic Information System (GIS). C The availability of GIS technology to display and evaluate information has been utilized by staff. GIS is a technology that can integrate spatial information with a database to facilitate the management, analysis and display of geo-referenced data. The DRBC web site is used to present many of the map products developed with the GIS.

GIS has been integrated into nearly all facets of the DRBC programs. During FY2002, the Arc Info licenses were shifted to the Windows2000 operating system. Currently, staff has eight single use and two floating ArcView 8.2 licenses.

The GIS Coordinator will continue to develop data layers to be used by staff. Data layers are prepared using ArcInfo and then converted to a format that staff can use with ArcView. Staff can then develop and incorporate geographic information in reports, presentations and other efforts. Upgrades to the existing Arc/Info software and ArcView software are anticipated. Some specialty software may be requested for special projects.

During 2002, updated recreation maps of the Schuylkill River were prepared by the Delaware River Basin Commission (DRBC) in partnership with the Schuylkill River Greenway Association and Pennsylvania's Department of Conservation and Natural Resources (DCNR). This effort involved the use of GIS base maps which were then imported into desktop publishing for annotation of launch sites, river classifications, etc.

The Pennsylvania Department of Conservation and Natural Resources has awarded the Delaware River Greenway Partnership (DRGP) a \$75,000 Community Recreation Grant to develop a "blueprint" for the Delaware Water Trail. It is anticipated that as this effort progresses, DRBC staff will be assisting in the preparation of recreation/river trail maps.

During FY2003, the i-Map DelBasin project should become available on the Internet. This project, conceived by the Information Management Advisory Committee (IMAC), is intended to provide GIS data to the public via the Internet Map Server. A major enhancement with the i-Map DelBasin project is provision to view GIS datalayers simultaneously from various state servers. The project will be hosted by the State of New Jersey - Office of Information Technology (OIT). Future

enhancements will likely include additional data layers and provision to access more state and federal servers.

Specialized training is required to remain current with the changing software technology. Training for ArcInfo and ArcView will be ongoing. Additional training will be required for the administration of the NT server and network.

World Wide Web Site.C The DRBC web site (<http://www.state.nj.us/drbc/>) was designed and is maintained by staff. Since its inception, the number of visits has steadily grown, presently averaging 10,000 to 11,000 per month.

Significant educational features have been added to the DRBC web site. The intent is to provide information to a wide spectrum of users. Within the AWhat We Do@ page are topics on water use, conservation, education and recreation, geographic information systems (maps), hydrologic information, meetings, new releases, publications, regulations, special water related investigations and studies, and details about the annual water snapshot. Many of the documents are available in a downloadable format.

As the user progresses into the web pages, more detailed information can be found about conservation polices and techniques to conserve water. Also, information is available regarding the Waterways Corridors effort. This is a stream restoration technique that has shown significant results in stream bank stabilization, reduction in erosion and storm water runoff.

Other web pages are devoted to Flood Information, Drought Information, the Importance of Stream Gages, and Ed. Web, a resource for teachers and students. Another web feature is the Interactive Map displaying all of the telemeter stream gages, watershed facts and known watershed association in the Delaware River basin.

An off shoot of the DRBC web site are the web pages devoted to the Regional Information Management Service (RIMS). RIMS is an action item of the Delaware Estuary Program. The principal function of RIMS is to disseminate information to the public. A more detailed discussion of RIMS is presented in this document as part of the Delaware Estuary program.

Electronic Record Keeping.C Electronic record keeping alternatives are being investigated. Presently, only certain documents are being placed on a film media and stored off site. Because of the volume of unstructured material being delivered each day in paper form, a solution is needed to convert the paper documents into digital format. Advantages of using digital documents include the following: rapid posting and updates of information; tracking; and through use of offsite storage of the material, preservation of records in the event of a disaster. The major expenses associates with an electronic record system are expenses related to the equipment and software costs, and the staff time required to prepare documents for digitization and recompile them following electronic transfer procedures.

Mailing Lists.C During 1999, the Commission's mail list was migrated to a Pitney-Bowes SmartMailer7 database. This computer program provides for postal pre sort of large mailings, thus reducing mail costs. A special printer also was purchased which can handle a variety of envelope sizes. The Commission will continue to use this database in 2003.

Replacement copiers. C The existing XEROX copier has maintenance problems. Replacement options are being investigated that could function as both printers and copiers on the computer network.

APPENDIX A
DRBC RESOLUTIONS

NO. 2003-6

A RESOLUTION to adopt the 2003 Water Resources Program.

WHEREAS, Section 13.2 of the Delaware River Basin Compact requires the Commission to annually adopt a Water Resources Program based upon the Comprehensive Plan; and

WHEREAS, the Governors of the four basin states, by their resolution of September 29, 1999, directed the Commission to develop a new comprehensive water resources plan for the basin (Anew Basin Plan@), and

WHEREAS, the new Basin Plan will be forward looking and direction setting; and

WHEREAS, the Commission has established a Watershed Advisory Council to guide and advise the Commission in the development of the new Basin Plan; and

WHEREAS, adoption of the new Basin Plan is not anticipated until 2004; and

WHEREAS, development of the new Basin Plan will entail a re-examination of policies and programs of the Commission; and

WHEREAS, this re-examination will affect development and content of the annual Water Resources Programs; and

WHEREAS, the Commission has initiated a comprehensive review and updating of the Commission's Water Quality Standards which likely will result in new directions in the Water Resources Program; and

WHEREAS, currently the Commission is re-examining assumptions underlying the Commission's drought operating plan, a component of the Water Resources Program; and

WHEREAS, the Commission has undertaken a study entitled AStrategy for Resolving Interstate Flow Management Issues in the Delaware River Basin,@ which study likely will result in new actions bearing on the Water Resources Program; and

WHEREAS, it is the policy of the Commission to revise the water resources needs component of the Water Resources Program only in order to reflect new findings and conclusions derived from the Commission's continuing programs; and

WHEREAS, the aforementioned activities and policies have resulted in no actions to date that are inconsistent with the 2002 Water Resources Program; and

WHEREAS, the activities, programs, initiatives, concerns, projections, and proposals as identified and set forth in the 2002 Water Resources Program, with minor amendments to reflect progress over the past year, should be continued and are thus proposed to be adopted as the 2003 Water Resources Program; and

WHEREAS, the work plans supporting the annual budgets reflect the programs and policies in the 2003 Water Resources Programs; and

WHEREAS, the Commission held a public hearing on the proposed 2003 Water Resources Program on March 19, 2003; now therefore,

BE IT RESOLVED by the Delaware River Basin Commission:

The 2002 Water Resources Program and the activities, programs, initiatives, concerns, projections, and proposals as identified and set forth therein, with minor amendments to reflect progress over the past year, are hereby extended and adopted as the 2003 Water Resources Program.

/s/ John Hines

John Hines, Chairman pro tem

/s/ Pamela M. Bush

Pamela M. Bush, Esq., Commission Secretary

ADOPTED: March 19, 2003

APPENDIX B

LIST OF NON-COMPREHENSIVE PLAN PROJECTS APPROVED

The following list of projects approved by the Commission under Section 3.8 of the Compact during 1/1/02 to 12/31/02
but not part of the Comprehensive Plan nor Water Resources Program
is included herein for informational purposes only.

D-02-042	LITTLE WASHINGTON WASTEWATER CO	STP RERATE - SUBURBAN WASTEWATER CO	11/25/2002
D-99-007 *	UNITECH SERVICES GROUP INC	TERTIARY TREATMENT PLANT NEW OUTFALL	10/16/2002
D-02-013	BIDERMANN GOLF CLUB	GWWD WELL NO. 5	8/28/2002
D-86-015 REN2	COASTAL EAGLE POINT OIL COMPANY AND EAGLE POINT COGEN PARTNERSHIP	GWWD RENEWAL	8/28/2002
D-02-019	DELAWARE RACING ASSOCIATION	SWWD WHITE CLAY CREEK	8/28/2002
D-99-023	KIMBLE GLASS INC	WELLS 5, 6, 7	8/28/2002
D-02-024	MORGAN HILL GOLF CLUB	GWWD IRR	8/28/2002
D-02-026 *	MOYER PACKING COMPANY	GWWD WELLS PW-9 AND PW-10	8/28/2002
D-02-022 P.A. *	SUSAN'S VINEYARD	GWWD WELL 2	7/22/2002
D-96-049 P.A. RENEWAL *	TEVA PHARMACEUTICALS USA	GWWD WELLS NO 1 - 3	7/22/2002
D-02-009 P.A. *	TWIN PONDS GOLF COURSE	GWWD WELL NO. 3	7/22/2002
D-02-020	FIFER ORCHARDS INC	GWWD WELLS 6 & 7	7/17/2002
D-02-012	NEWARK COUNTRY CLUB	GWWD WELL NO. 5	7/17/2002
D-85-080 REN 2	BOYERTOWN FOUNDRY CO	WELL 1A RENEWAL	5/31/2002
D-91-055 RENEWAL	MC GINLEY MILLS INC	GROUND WATER WITHDRAWAL RENEWAL	5/31/2002
D-01-060	WEST VINCENT TOWNSHIP	CONSTRUCT STP AND EFFLUENT SPRAY IRRIGATION SYSTEM	5/31/2002
D-01-035 PA *	FEENEY'S WHOLESALE NURSERY INC	GROUND WATER WITHDRAWAL	4/9/2002
D-01-062	ARONIMINK GOLF CLUB	GWWD	4/3/2002
D-94-030 REV	BOEING DEFENSE AND SPACE GROUP	IWTP DISCHARGE MODIFICATION	4/3/2002
D-01-040	CAMELBACK SKI CORPORATION	SWWD	4/3/2002
D-02-007	HANAH COUNTRY INN	SEPTIC SYSTEM	4/3/2002
D-01-057 *	ACE CENTER, THE	GROUND WATER WITHDRAWAL	2/6/2002
D-01-052 *	Beach Lake Village	SEWAGE TREATMENT PLANT CONSTR	2/6/2002
D-01-031	CONECTIV MID-MERIT	SURFACE WATER WITHDRAWAL	2/6/2002
D-01-045 *	LEJEUNE PROPERTIES, INC.	CONSTRUCTION SEWAGE TREATMENT PLANT	2/6/2002
D-01-007	MBNA AMERICA	DEERFIELD GC WELLS 1-2	2/6/2002
D-90-096 REN	METACHEM PRODUCTS LLC	GW REMED WELLS RW-1 THRU 5 RENEWAL	2/6/2002
D-01-053	MOUNTAINSIDE FARMS, INC.	INDUSTRIAL WASTE TREATMENT PLANT UPGR & EXPAN	2/6/2002

*Ground Water Protected Area